WHAT IS CLAIMED IS:

1. A method of replacing a portion of a disc of a patient, the disc having an annulus and a nucleus, comprising:

inserting an access device through an incision in the skin of the patient generally postero-laterally and advancing the access device until a distal portion thereof is located adjacent the spine, said access device being inserted in a first configuration having a first cross-sectional area at the distal portion thereof;

configuring said access device such that the distal portion thereof is enlarged from the first configuration to a second configuration wherein the distal portion extends across at least a portion of the disc;

advancing an annulotomy tool through the access device to the intervertebral space;

forming an aperture in the annulus;

advancing a disc evacuation tool through the access device and through the aperture;

removing at least a portion of the nucleus through the access device to at least partially evacuate the intervertebral space; and

delivering a replacement disc nucleus into the partially evacuated intervertebral space through the access device.

2. The method of Claim 1, wherein the replacement disc nucleus comprises an injectable material.

3. The method of Claim 2, wherein the injectable material is chosen from a group comprising: hydrogels, thermoplastic elastomers, and proteinaceous biopolymers.

4. The method of Claim 1, wherein the replacement disc nucleus comprises an expandable element.

5. The method of Claim 4, wherein the expandable element comprises:

a bag in a collapsed configuration, wherein the bag may be inflated or allowed to expand.

6. The method of Claim 5, wherein the replacement disc nucleus further comprises a biocompatible material, which is injected into the bag in an expanded configuration.

7. The method of Claim 5, wherein the bag can be inflated to an expanded configuration with a gas or liquid after insertion.

8. The method of Claim 7, wherein a tool is inserted through the access device in order to inflate the bag.

9. The method of Claim 5, wherein the bag comprises a self-expanding frame that assumes a collapsed state for insertion, and an expanded state once inserted.

10. The method of Claim 9, wherein the self-expanding frame is composed of a shape-memory material.

11. The method of Claim 6, wherein the biocompatible material includes tissues, cells, or extracellular matrix components.

12. The method of Claim 6, wherein the biocompatible material includes autograft nucleus pulposus, allograft nucleus pulposus or xenograft nucleus pulposus.

13. The method of Claim 6, wherein the biocompatible material includes morselized nucleus or annulus from the disc.

14. The method of Claim 4, wherein the expandable element comprises:

a hydrogel core configured to expand from a dehydrated state to a hydrated state, the hydrogel core being configured to have a dehydrated shape in the dehydrated state that facilitates insertion of the replacement disc nucleus through an opening in an annulus fibrosus and being generally different from a hydrated shape of the hydrogel core in the hydrated state,

wherein the hydrogel core is surrounded by a constraining jacket, the constraining jacket being flexible but substantially inelastic.

15. The method of Claim 14, wherein the hydrogel core comprises a keratin hydrogel.

16. The method of Claim 14, wherein the constraining jacket is porous enough to allow the hydrogel core to interact with bodily fluids.

17. The method of Claim 16, wherein the hydrogel core is dehydrated prior to insertion.

18. The method of Claim 1, wherein the replacement disc nucleus comprises:

an ellipsoidal body having a convex top side for contracting and articulating with an end-plate cartilage of a top vertebrae and a convex bottom side for an immobile contact with a bottom vertebrae;

said convex top side having a dome crest that exceeds a dome crest of said convex bottom side by a factor of approximately three; and

a peg extending from said bottom side of the ellipsoidal body and providing for a pinning action with respect to said bottom vertebrae.

19. The method of Claim 1, wherein the replacement disc nucleus comprises disc cells and a biodegradable substrate.

20. The method of Claim 19, wherein the biodegradable substrate is bioactive.

21. A method of treating the spine of a patient, comprising:

inserting an access device through a minimally invasive incision in the skin of the patient;

advancing the access device until a distal portion thereof is located adjacent the spine;

expanding said access device from a first configuration to a second configuration, the second configuration having an enlarged cross-sectional area at the distal portion thereof such that the distal portion extends across at least a portion of a disc;

delivering a replacement disc nucleus into an intervertebral space through the access device.

22. A device for providing access to a surgical location within a patient, said device comprising:

an elongate body having a proximal end, a distal end, and a passage extending therebetween, the elongate body defining a length between the proximal and distal ends such that the proximal end can be positioned outside the patient and the distal end can be positioned inside the patient adjacent the surgical location, the distal end being shaped to conform to a contour of an anatomical structure near the surgical location; and

wherein the elongate body is actuatable between a first configuration sized for insertion into the patient and a second configuration wherein the cross-sectional area of said passage at a first location is greater than the cross-sectional area of said passage at a second location, wherein the first location is distal to the second location.

23. A system for replacing a portion of a disc having a nucleus and an annulus, comprising

the access device of Claim 22;

an annulotomy tool for forming an aperture in the annulus through the access device; and

a disc evacuation tool for removing at least a portion of the nucleus through the access device.

24. A device for accessing an intervertebral disc of a patient having a nucleus and an annulus, said device comprising:

an elongate body having a proximal end, a distal end, and a passage extending therebetween, the elongate body defining a length between the proximal and distal ends such that the proximal end can be positioned outside the patient and the distal end can be advanced inside the patient and into the annulus; and

wherein the elongate body is actuatable between a first configuration sized for advancement to spine and a second configuration wherein the cross-sectional area of said passage at a first location is greater than the cross-sectional area of said passage at a second location, wherein the first location is distal to the second location.

25. The device of Claim 24, wherein the distal end can be further advanced through the annulus.

26. The device of Claim 24, wherein the elongate body actuating between a first configuration and a second configuration enlarges a hole in the annulus.

27. A device for accessing an intervertebral disc of a patient having a nucleus and an annulus, said device comprising:

an elongate body having a proximal end, a distal end, a passage extending therebetween, and a viewing element aperture located near the distal end, the elongate body defining a length between the proximal and distal ends such when the distal end is advanced into the patient to the annulus, the proximal end is positioned outside the patient; and

a viewing element extending through the aperture into the passage.